

Claims:

- 1) A method of carrying out chemical and physical operations, especially for preparing organic pigments or pigment preparations, which comprises spraying two or more liquids or suspensions through two or more nozzles which are not coaxially aligned with one another, at a pressure of between 1 and 1000 bar, and with a volume flow of between 5 and 500 l/h, without the use of a carrier gas stream, into a swirl chamber, thereby inducing turbulent mixing of the liquid phase, with physical alteration, and, after physical alteration has taken place, discharging the liquid phase continuously from the swirl chamber through an outlet aperture.
- 2) The method as claimed in claim 1, wherein the pressure is from 2 to 500 bar.
- 15 3) The method as claimed in claim 1 or 2, wherein the axes of the nozzles are set at an angle of between 0° and 90°, based on the cross-sectional area of the swirl chamber, in opposition to the outlet aperture.
- 20 4) The method as claimed in at least one of claims 1 to 3, wherein the physical alteration is the reaction to form an azo colorant.
- 5) The method as claimed in claim 4, wherein the reaction comprises one or more of the steps of diazotization, coupling, laking, and complexing.
- 25 6) The method as claimed in at least one of claims 1 to 5, wherein a reaction is carried out to form an azo pigment from the group C.I. Pigment Yellow 1, 3, 12, 13, 14, 16, 17, 65, 73, 74, 75, 81, 83, 97, 98, 106, 111, 113, 114, 120, 126, 127, 150, 151, 154, 155, 174, 175, 176, 180, 181, 183, 191, 194, 198, 213; Pigment Orange 5, 13, 34, 36, 38, 60, 62, 72, 74; Pigment Red 2, 3, 4, 8, 9, 10, 12, 14, 22, 38, 48:1-4, 49:1, 52:1-2, 53:1-3, 57:1, 60, 60:1, 68, 112, 137, 144, 146, 147, 170, 171, 175, 176, 184, 185, 187, 188, 208, 210, 214, 242, 247, 253, 256, 262, 266; Pigment Violet 32; and Pigment Brown 25.

7) The method as claimed in at least one of claims 1 to 3, wherein the physical alteration is a dispersing and/or fine division of a pigment in a liquid medium.

5 8) The method as claimed in claim 7, wherein the fine division takes place by injecting a pigment solution into the swirl chamber filled with a precipitation medium.

9) The method as claimed in claim 7, wherein the pigment is dispersed in the 10 swirl chamber in a flocculation-stable, liquid medium, to give a liquid pigment preparation.

10) The method as claimed in one or more of claims 7 to 9, wherein the 15 pigment is an organic pigment from the group of the perylene, perinone, quinacridone, quinacridonequinone, anthraquinone, anthanthrone, benzimidazolone, disazo condensation, azo, indanthrone, phthalocyanine, triarylcarbonium, dioxazine, aminoanthraquinone, diketopyrrolopyrrole, indigo, thioindigo, thiazineindigo, isoindoline, isoindolinone, pyranthrone, isoviolanthrone, flavanthrone, anthrapyrimidine and carbon black pigments, and also mixed 20 crystals or mixtures thereof.

11) The method as claimed in claim 9 or 10, wherein the pigment preparation is an electrophotographic toner or an inkjet ink.

25 12) A device for carrying out the method as claimed in at least one of claims 1 to 11, wherein there are two or more nozzles (3, 7) each with dedicated pump and feed line (4, 6) for introducing one liquid medium each into a swirl chamber (2) surrounded by a casing (1); wherein the nozzles are not aligned coaxially with one another; wherein there is an outlet aperture (5) for leading off the resulting 30 products from the swirl chamber (2); and wherein, if desired, a temperature measuring means (8) is brought up to the swirl chamber.

13) The device as claimed in claim 12, wherein the axes of the nozzles are set at an angle of between 0° and 90°, based on the cross-sectional area of the swirl chamber, in opposition to the outlet aperture.

5 14) The device as claimed in claim 12 or 13, wherein the swirl chamber has a volume of from 0.1 to 100 ml, preferably 1 to 10 ml.